

The Relationship of Analytical Skills and Information Literacy on Student Learning Outcomes of Economic Education Study Program at the Faculty of Teacher Training and Education, Lambung Mangkurat University

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ABSTRACT

This study aims to determine the relationship between analytical skills and information literacy on student learning outcomes of the Economic Education Study Program FKIP ULM. This study used a descriptive method with a quantitative approach, the research sample was taken using a proportionate stratified random sampling technique and obtained 141 samples. Data collection techniques using tests, questionnaires and documentation. The analysis technique uses descriptive analysis and hypothesis testing using the Kendall Tau-B Correlation test and the Kendall W Concordance Coefficient test because the data in this study are not normally distributed. The results showed that: (1) students' analytical skills were included in the high category, (2) students' information literacy was included in the medium category, (3) there was a positive relationship between analytical skills and learning outcomes ($\tau = 0.256$; $p < 0.05$), (4) There is a positive relationship between information literacy and learning outcomes ($\tau = 0.201$; $p < 0.05$). The results of the Kendall W Concordance Coefficient test show the strength of the relationship of 0.940 which is included in the very strong category. Developing analytical skills and improving information literacy are essential for achieving better learning outcomes. To accomplish this, students must learn effective habits of gathering information, paraphrasing, and creating new knowledge. This ability can help students become more effective learners, leading to improved academic performance and long-term success.

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Received: May 14, 2024; Accepted: May 17, 2024; Published: May 30, 2024

Keywords: Analytical Skills, Information Literacy, Learning Outcome

Introduction

Analytical skills refer to the ability to understand and analyze information and make informed decisions, while information literacy is the ability to access, evaluate, and use information effectively. Studies have shown that there is a positive relationship between analytical skills and information literacy on student learning outcomes. Students who possess strong analytical skills and information literacy skills are better equipped to process, evaluate, and make use of the information they encounter in their academic studies, leading to improved learning outcomes. For example, students who are analytically skilled and information literate are better able to understand complex information and synthesize it into meaningful insights. They are also more likely to engage in critical thinking and problem-solving, which can lead to deeper understanding of the material and improved performance on exams and assessments. Moreover, information literate students are able to access and effectively use relevant information from a variety of sources, including libraries, databases, and the Internet. This leads to improved research skills, which can also contribute to better learning outcomes.

Learning outcomes are achievements obtained by students after going through a learning process over a certain period of time, expressed with symbols, numbers, or letters [1]. For students, the main focus of learning outcomes is the Cumulative Performance Index (IPK), which is a student's learning outcome calculated based on the courses taken from the beginning of their enrollment.

As an illustration of learning outcomes in the campus environment, the IPK scores obtained by students are not separated from the factors that influence them. One factor that affects IPK scores is the difference in students' analysis abilities in problem-solving. Analysis ability can be defined as the ability to see possible solutions to a problem [2].

Analysis is the activity of breaking down information into parts and determining the relationships between each part. In the analysis process, there are actions of distinguishing, organizing, and connecting. The indicators of analysis ability are:

- Distinguishing, which is grouping or classifying into certain parts.
- Organizing, which is the activity of arranging the parts that have been distinguished to form a complete and organized whole.
- Connecting, which is linking several concepts that have

similarities [3]. In addition to differences in analysis ability, students' IPK scores can also be influenced by their information literacy [4]. Literacy in simple language is the ability to understand and manage information while reading and writing [5]. Information literacy is the skill to choose, find, use, and understand information according to needs so that information can be more effective in supporting lifelong learning [6].

Information literacy is a set of skills that are combined into two main abilities, the ability to find and the ability to use information effectively. The information literacy skills discussed in this research will focus more on how to understand and use information well. The indicators of information literacy in terms of the ability to understand and use information are organized based on the information literacy standards developed by The Association of College & Research Libraries, which are:

Selecting information: the ability to select information includes identifying main ideas and matching found information [7].

Connecting information: the ability to connect information includes understanding selected information, integrating old and new information, and communicating information to others.

Ethics in using information: ethics in using information includes activities to state that information is not owned and to make quotes.

Based on field observations and student interviews, it was found that although the GPA obtained is considered satisfactory, there are still some students who are not satisfied. This is because the GPA they obtained is not in line with their efforts in obtaining the GPA if compared to other students with the same study effort. One of the problems complained by students is the number of students with higher GPAs but unable to write a good and correct paper.

In conclusion, the relationship between analytical skills and information literacy on student learning outcomes is a positive one. Developing these skills can help students become more effective learners, leading to improved academic performance and long-term success.

Research Method

This research uses descriptive quantitative method. The population in this research is active students of Economics Education Study Program at ULM FKIP, with a total of 215 students in the cohort of 2018-2020. The minimum sample calculation in this research uses the Slovin formula. The established margin of error is 5%. The sampling technique used is Proportionate Stratified Random Sampling because the research population consists of three groups of students based on their cohort. The sample size for each group can be seen in Table 1 below.

Table 1: Research Sample

Cohort	Number of Students
2018	54
2019	48
2020	39
Total	141

Data collection technique uses a test for the variable of analysis ability, questionnaire for the variable of information literacy, and documentation for the variable of learning outcomes. The data analysis technique used is descriptive analysis and for hypothesis

testing, Kendall tau-b correlation test and Kendall W concordance coefficient test are used because the data in this research is not normally distributed.

Results and Discussion

The results of the research can be seen in the following table.

Table 2: Distribution of Respondents in the Analysis Ability and Information Literacy Variables

No	Variabel	Frequency	Category
1	Analysis ability	9	Low
		22	Moderate
		110	High
2	Information literacy	28	Low
		94	Moderate
		19	High

From table 2, it can be concluded that the ability analysis variable is categorized as high, while the information literacy variable is categorized as moderate.

The results of the Kendall Tau B correlation test between ability analysis and learning outcomes showed a correlation coefficient of 0.256 ($p < 0.05$). If further analyzed based on the category groups of ability analysis, the correlation coefficient will be obtained as shown in the following table.

Table 3: Results of the Kendall Tau B Correlation Test between Ability Analysis and Learning Outcomes based on the Category Group of Ability Analysis

Ability Analysis	Value (p)	Correlation Coefficient
Low	> 0,05	0,304
Moderate	> 0,05	-0,010
High	< 0,05	0,226

The results of the Kendall Tau B correlation test between information literacy and learning outcomes showed a correlation coefficient of 0.201 ($p < 0.05$). If further analyzed based on the category groups of information literacy, the correlation coefficient will be obtained as shown in the following table.

Table 4: Results of the Kendall Tau B Correlation Test between Information Literacy and Learning Outcomes based on the Category Group of Information Literacy

Information Literacy	Value (p)	Correlation Coefficient
Low	> 0,05	-0,162
Moderate	> 0,05	0,128
High	> 0,05	-0,237

The results of the Kendall W Concordance Coefficient test between ability analysis and information literacy towards learning outcomes showed a concordance coefficient of 0.940 ($p < 0.05$). If further analyzed based on the category groups of ability analysis and information literacy, the concordance coefficient will be obtained as shown in the following table.

Table 5: Results of the Kendall W Concordance Coefficient Test between Analysis Ability and Information Literacy on Learning Outcomes based on the Category Groups of Analysis Ability and Information Literacy

Kendall W Concordance Coefficient		Value (p)	
Category of Analysis Ability	Low	1	< 0,05
	Moderate	1	< 0,05
	High	1	< 0,05
Category of Information Literacy	Low	0,934	< 0,05
	Moderate	0,940	< 0,05
	High	0,950	< 0,05

Discussion

Analysis Ability Overview

The analysis abilities of the students are categorized as high at 78%, as seen from their ability to differentiate, organize, and connect. This result is similar to the study by Astriani et al. which stated that the analysis abilities of students are categorized as good in the indicators of differentiation and organization, and categorized as less good in the indicator of connection [8]. Thus, the indicator of connection needs more attention. This result is in line with the Gestalt theory which states that humans are not only fixed on stimuli but are also capable of learning from the experiences they have had [9]. In this case, the high analysis ability could be due to the numerous experiences and practices in analytical thinking during each lecture. Dewi stated that the analysis abilities of students during remote online learning increased in each cycle [10]. In the first cycle, the analysis abilities of students were obtained at a percentage of 75%, the second cycle was 78% and the third cycle was 83%.

Information Literacy Overview

Research results show that the information literacy of students falls under the moderate category at 66.6%. From these results, students are classified as moderate on the indicator of choosing information (61.7%), moderate on the indicator of connecting information (64.5%), and moderate on the ethical indicator in using information (59.6%). Students with moderate information literacy skills are already able to use information literacy to complete college assignments [11]. In this case, students are able to select and verify the information to be used and to state the use of someone else’s information [12]. This result is inversely proportional to the research by Nurhayati and Musa which concluded that many students are not yet able to choose information and use information literacy [13].

The Relationship between Analysis Skills and Learning Outcomes The results of the Kendall Tau-B correlation test show that there is a significant relationship between analysis skills and student learning outcomes with a correlation coefficient of 0.256 ($p < 0.05$). When looking at the analysis skills category, which are low, moderate, and high, only in the group of students with high analysis skills is there a significant relationship between analysis skills and learning outcomes, while in the group of students with low and moderate analysis skills, there is no significant relationship between analysis skills and learning outcomes. This result is similar to the result of Setiawan’s research, which concluded that the learning outcomes of students with high analysis skills are better compared to students with moderate and low analysis skills [14].

The Relationship between Information Literacy and Learning Outcomes

The results of the Kendall Tau-B correlation test showed a significant relationship between information literacy and the

learning outcomes of students with a correlation coefficient of 0.201 ($p < 0.05$). This is in line with Banat & Pierewan who suggested that information literacy competency predicts academic achievement in the knowledge domain, meaning that higher literacy results in better academic performance for students [15]. This research result is consistent with the information processing theory that assumes that learning involves receiving information, processing it, and producing learning outcomes. The learning outcomes here refer to the ability which consists of verbal information, intellectual ability, cognitive strategies, attitude, and motor skills [16].

Further analysis of the correlation test between information literacy and learning outcomes, based on the category groups of students’ information literacy, which consists of low, moderate, and high categories, showed the same test results for all category groups, i.e. $p > 0.05$, which means there was no significant relationship between information literacy and learning outcomes, whether the students’ information literacy was in the low, moderate, or high category. Although students’ information literacy was moderate, if we look at the comparison between the number of students in the low and high categories, it can be seen that students with low information literacy were more numerous than those with high information literacy, thus highlighting the importance of improving students’ information literacy skills. Prasetyo et al. concluded that even students with skilled information use category should improve their skills as mastery and use of information will affect their level of competence [17].

The results of the Kendall W Concordance Coefficient test showed that there is a significant relationship between analysis ability and information literacy with student learning outcomes, with a concordance coefficient of 0.940 ($p < 0.05$). The Kendall W Concordance Coefficient test also showed the same results after being analyzed based on the student analysis ability categories, with a significant relationship between analysis ability and information literacy with student learning outcomes in the groups of students with low, moderate, and high analysis abilities. It can be concluded that the analysis abilities of students are sufficient. Some students, who are considered to have low analysis abilities, are based on the results of the collected answers. Nurilyasari, Zainuddin, & Hariyanto stated in their research that when solving problem-solving questions, students are capable, but sometimes not careful and do not double-check, making it possible for errors in calculations [18].

The results of the Kendall W Concordance Coefficient test, which were obtained, also have similarities after being analyzed based on the student information literacy categories, which include low, moderate, and high categories, with a significant relationship between analysis ability and information literacy with student learning outcomes in the groups of students with low, moderate, and high information literacy. The obtained concordance coefficient values show an improvement with an increase in the information literacy category. The group with high information literacy showed the strongest relationship among the three groups, with a coefficient value of 0.950. Students with high information literacy are usually able to use information literacy to find and use information effectively [19]. The concordance coefficient value in the group of students with moderate information literacy decreased slightly compared to the group of students with high information literacy, with a coefficient value of 0.940. Moderate information literacy means that students have not fully used their information literacy abilities to search for and use information. This also means that the students’ information literacy abilities are good in some indicators, but still

need to be improved in other indicators [20]. The concordance coefficient value in the group of students with low information literacy also decreased slightly compared to the group of students with moderate information literacy, with a coefficient value of 0.934. Low information literacy means that students are not yet able to use their information literacy abilities to use information, so their information literacy abilities need to be improved. In terms of the ability to use information, the ability that needs to be improved is the ability to compile references, paraphrasing and creating new knowledge [21]. Continuous training and habits can quickly improve the ability to use information effectively [22].

Conclusion

In general, the research results show that students' analysis ability is categorized as high while their information literacy is categorized as moderate. The results of the Kendall Tau B correlation test showed a positive relationship between analysis ability and learning outcomes ($\tau = 0.256$; $p < 0.05$) and a positive relationship between information literacy and learning outcomes ($\tau = 0.201$; $p < 0.05$). The results of the Kendall W Coefficient of Concordance test between analysis ability and information literacy on learning outcomes showed a strength of relationship of 0.940, which is categorized as very strong. Developing strong analytical skills and improving information literacy are essential for achieving better learning outcomes. To accomplish this, we must learn effective habits of gathering information, paraphrasing, and creating new knowledge. By continuously applying these practices during lectures, we can enhance our learning process and achieve greater success. It's time to invest in our education and take proactive steps towards better learning outcomes.

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